

ABSTRACT

An electrical storage device of the present invention is characterized in that a positive electrode, a negative electrode, a lithium electrode, and an electrolyte capable of transferring lithium ion is included, the lithium electrode is arranged to be out of direct contact with the negative electrode, and lithium ion can be supplied to the negative electrode by flowing a current between the lithium electrode and the negative electrode through an external circuit. With the above characteristic, problems such as non-uniform carrying of lithium ion to the negative electrode, shape-change of a cell, and temperature increase of an electrolytic solution under incomplete sealing of a cell and the like can be easily solved. A using method of the electrical storage device is characterized in that, by using the lithium electrode as a reference electrode, the positive electrode potential and negative electrode potential can be measured, and the potential of the positive or negative electrode can be controlled when the electrical storage device is charged or discharged. Therefore, the potentials of the positive electrode and negative electrode can be monitored, thereby it can be easily determined whether deterioration of the electrical storage device is caused by the positive electrode or the negative electrode. Also, it is possible to control the device with the potential difference between the negative electrode and reference electrode,

that is, the negative potential. In addition, when characteristics deteriorate such as the internal resistance increase, an appropriate amount of lithium ion can be supplied to the negative electrode and/or positive electrode by the lithium electrode.